



VIDEOGRAPH

High Speed
Printing
Equipment
Price List

June 9, 1965

HIGH SPEED PRINTERS

<u>Equipment</u>	<u>Sales Price</u>	<u>3 year Lease</u>
Model 9041 Printer/Plotter	\$98,500.00	\$2,421/Mo.
Model 904 Page Printer	98,500.00	2,421/Mo.
Model 9414 P.C.U.	62,200.00	1,500/Mo.
Model 9300 Tape Handler	21,400.00	450/Mo.

Prices do not include maintenance or parts replacement
except as covered by A. B. Dick Company's standard
warranty.

Prices are plus all applicable taxes, F. O. B.,
Niles, Illinois.

A·B·DICK

• COPYING / DUPLICATING PRODUCTS • ELECTRONIC DATA PRESENTATION

A·B·DICK

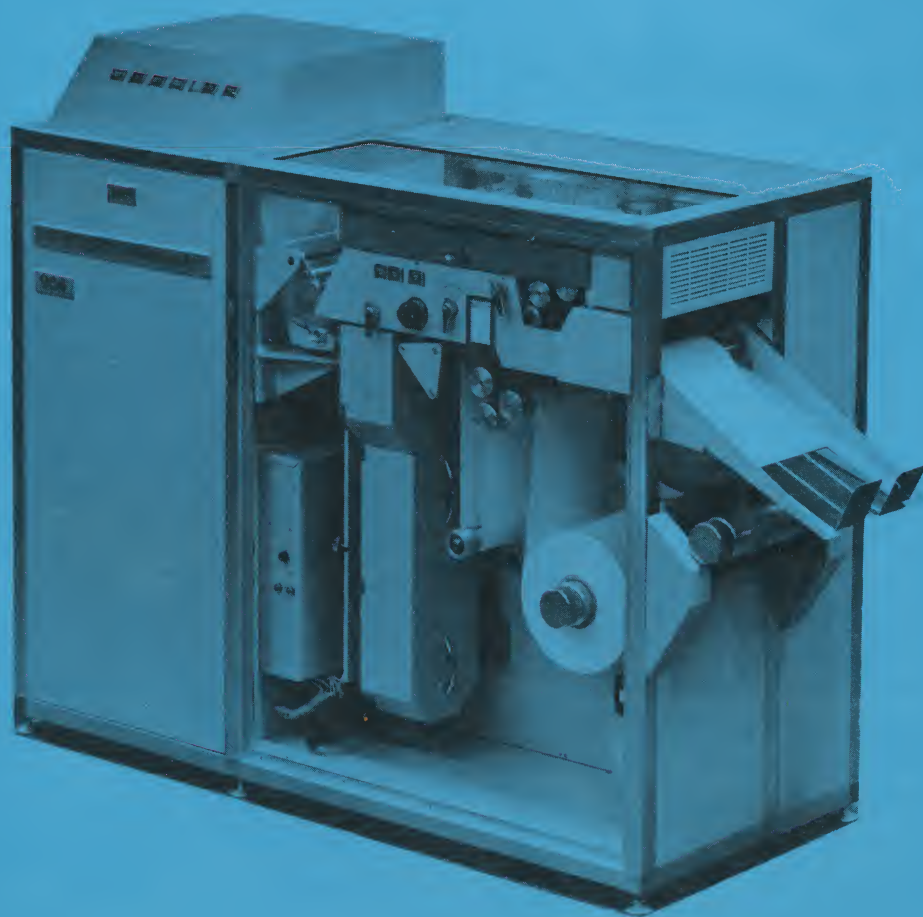


MODEL

904

VIDEOGRAPH

A B DICK ELECTRONIC DATA PRESENTATION



MODEL 904 PAGE PRINTER

MODEL 904 PAGE PRINTER

The newest in functional presentation and printout of readable data received from computer-coded source material, the Videograph Model 904 Page Printer (Figure 1) provides high-speed electrostatic printout of alphanumeric characters and symbols (Figure 2). By means of an electrostatic printing tube directed at a moving web of paper, character imaging, developing, and fixing are automatically performed under room lighting conditions. High contrast black-on-white permanent copy is delivered completely dry and ready for use.

A companion Printer Control Unit and Magnetic Tape Transport may be used in conjunction with the Videograph Model 904. This equipment provides complete flexibility and compatibility with various computer systems. The unit also serves as a buffer between the printer and a computer-prepared tape.

Coded digital input from the computer is received via the Printer Control Unit and converted to readable alphanumeric output in the form of video signals, by means of a character generator. Video signal output from the character generator is then applied directly to the electrostatic printing tube for printout in readable form on Videograph paper.

Copy is delivered permanently fixed and ready for use without further processing. Videograph paper and the fixed image are of archival grade and comparable, in contrast and permanence, to black-on-white copies produced on standard typewriters. Videograph paper has a dull finish which minimizes glare and furnishes a writing surface which easily accepts notations made with lead pencil, colored pencils, and fountain or ball-point pen.

The entire Videograph process, from printout to fixing, is completely compatible with the operating environment of conventional computers.

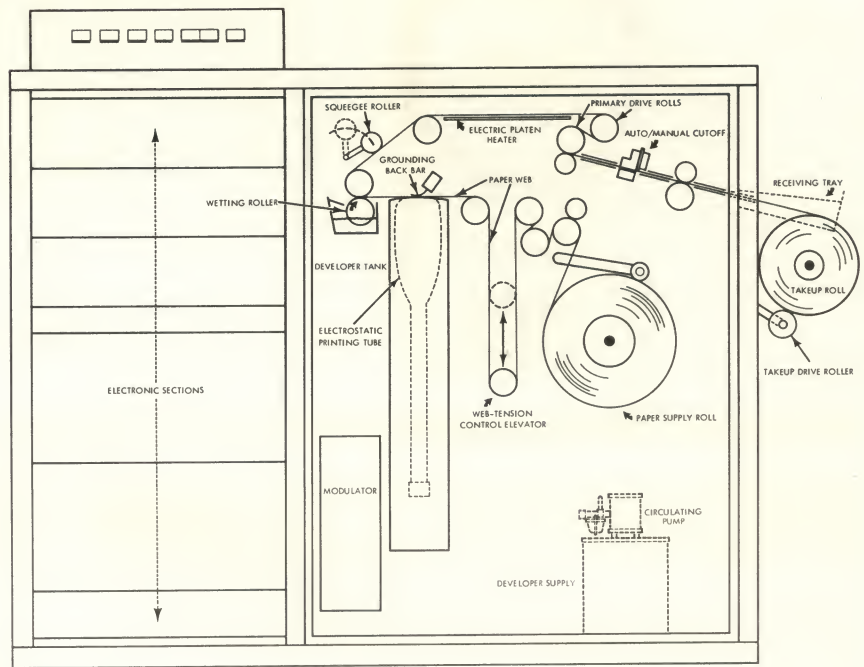


FIGURE 1

HARD COPY OUTPUT AT 7200 LINES PER MINUTE

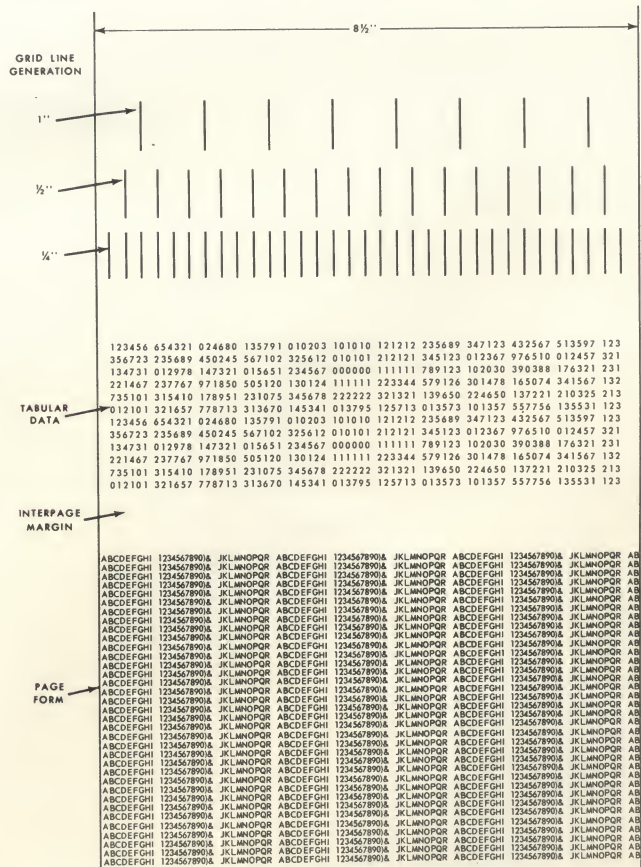


FIGURE 2

MAGNETIC TAPE TRANSPORT

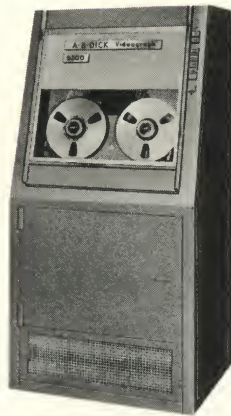


FIGURE 3

The Model 9300 Magnetic Tape Transport is a high-speed digital tape transport unit that reads computer-prepared digital data from magnetic tapes into a printer control unit.

The Model 9300 features a vacuum buffering system which offers an operating tape speed of 75 inches-per-second with either high-density 556 or 800 bits-per-inch tapes and automatic high-speed rewind. Tape loading is accomplished by push-button arm retraction control. Additional operator features include a slope-front cabinet for easier tape loading and precision tape guiding for longer tape life. "Quick Lock" NARTB reel hubs further facilitate faster, easier reel loading.

Functioning with the Videograph Page Printer and Printer Control Unit, the Model 9300 Magnetic Tape Transport generates digital information for use in the Videograph Page Printing System.

VIDEOGRAPH ELECTROSTATIC PRINTING

Developed by A. B. Dick Company, the Videograph electrostatic printing and developing technique makes possible ultra-high-speed printout from the Model 904 Page Printer at rates up to 7,200, 130 character lines per minute.

The unique feature of the equipment designed to accomplish this high-speed printing is a variation of the conventional cathode-ray tube. Instead of a fluorescent screen for image reproduction, the Videograph electrostatic printing tube (Figure 4) uses a screen or matrix of extremely fine wires extending through and sealed into the faceplate of the tube.

Video signals representing the characters and symbols to be recorded, direct the electron beam through a series of deflection plates within the tube to "write" character configurations on the wire matrix.

Current passing through the wires places an invisible electrostatic charge pattern on a moving web of paper, conforming to character images. The paper is then passed through a developer section where developing and fixing are accomplished automatically.

The Videograph printing technique is designed for maximum flexibility with systems applications. It is a less costly, highly dependable electrostatic printing method that eliminates the need for photoconductive elements, expensive papers, and a variety of peripheral factors.

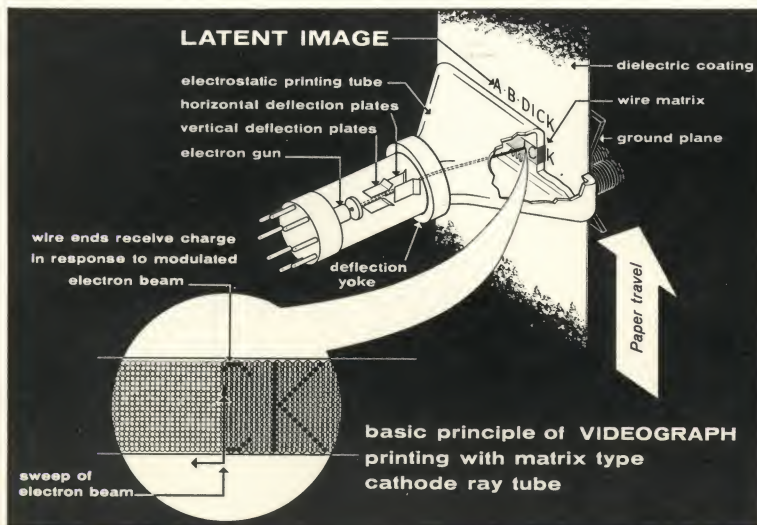


FIGURE 4

PRINTER CONTROL UNIT



FIGURE 5

The Model 9404 Control Unit (PCU) acts as an input control unit for the Videograph Model 904 Page Printer (Figure 5). In this function, the PCU provides the proper signals and controls necessary to command input data from digitally coded magnetic tape for proper sequential delivery to the Videograph Page Printer.

The signals and controls emanating from the PCU command the Page Printer to print alphanumeric characters or plot precise points on a moving web of paper as well as to command the printer to cut the web at programmed intervals.

As an interconnecting system, the PCU and the Videograph Model 904 Page Printer form a complete and extremely flexible recording system.

*MODEL 904 CONDENSED SPECIFICATIONS

PRINTER TYPE:

Videograph electrostatic demand-type printer for high-speed, "daylight" printout of directly acquired, or computer processed, digital data.

PLOTTED POINT PRINTING RATE:

83,333 points per second.

CHARACTER PRINTING RATE:

15,625 characters per second.

PAGE PRINTING RATE (TYPICAL):

7200, 130 character lines per minute for pica typewriter characters (14 per inch) with optional lines per inch spacing, at web speeds up to 20" per second.

FORM PRINTING:

Because of the 904's ability to produce high speed graphical plots it is capable of form printing done simultaneously with character output. This is extremely valuable when printing columnar data such as inventory control sheets. This can also be applied to box headings such as those used in many billing applications.

CHARACTER CHOICE:

64 different characters or symbols to customer's specifications.

PRINTING WIDTH:

8½" line length.

WEB WIDTH AND LENGTH:

Either 8½" or 11" wide by 1460 feet long in 10" O.D. rolls.

WEB SPEED:

Variable to 20" per second depending on line spacing desired.

SPEED SELECTION ACCURACY:

Within ±1%.

POINT POSITION ACCURACY FOR FORM PRINTING:

Within 0.015" in any selected 1-inch interval along the chart length; within ±0.1% of full scale horizontal deflection for points located between two grid lines of ½" separation.

POINT FIELD CENTERING STABILITY:

Accuracy within ±⅛" in relation to web for at least 50 hours operation.

COPY CHARACTERISTICS:

Black characters on white, dull finish paper suitable for notation with pencil, ball-point, or pen and ink. Image and paper are equal in permanence and contrast to copies made on office typewriters.

INPUT LINES FOR DATA SIGNALS FROM SEPARATE CONTROL UNIT:

Signals may be pulse-coded or levels-plus-strobe. 6 digital-data lines for 6-bit binary code (parallel) for character selection; one line for parity check. One character strobeline (if used). One video line to print points and grids. 10 digital deflection lines to select cross web printing position.

INPUT DATA SIGNAL VOLTAGES

(±20% UNLESS OTHERWISE INDICATED):

Character Selection and Parity: Plus 5-V level= binary one.
Minus 5-V level= binary zero.

Character Strobe: 2 μsecond, 6-V positive pulse (±10%)

Video: 1-V positive pulse=black, 0.3 μsecond min.; 225 μsecond max.

Deflection: Plus 5-V level= binary zero. Minus 5-V level= binary one. Binary zero represents no deflection from left edge; all binary ones represent full scale (1024 increments). A binary one on line #one represents one unit (1/1024) deflection from the left.

Deflection Parity Error: Minus 5-V baseline, 2 μsecond, 10-V positive pulse= error.

Horizontal Sweep Gate: Minus 5-V level=reset to left. Plus 5-V level= sweep to right at 1"/30 μsecond rate.

OUTPUT DATA SIGNALS TO CONTROL UNIT:

Character Reset Strobe: One line to reset strobe following character cycle. 6-volt negative, 2 μsecond pulse= digital one.

SIZE:

60" L (without receiving tray) x 46" H x 26" W.

WEIGHT:

1100 lbs.

ELECTRICAL REQUIREMENTS:

208 V. A. C. ±10%, 3φ, 4-wire (1 neutral), 30 amp. per phase, 60 cps ±2 cps; one, 1-inch braided, direct earth ground cable.

VENTING:

Via 6" duct, blower furnished by customer to deliver 600 CFM.

*Specifications are approximate and subject to change without notice.

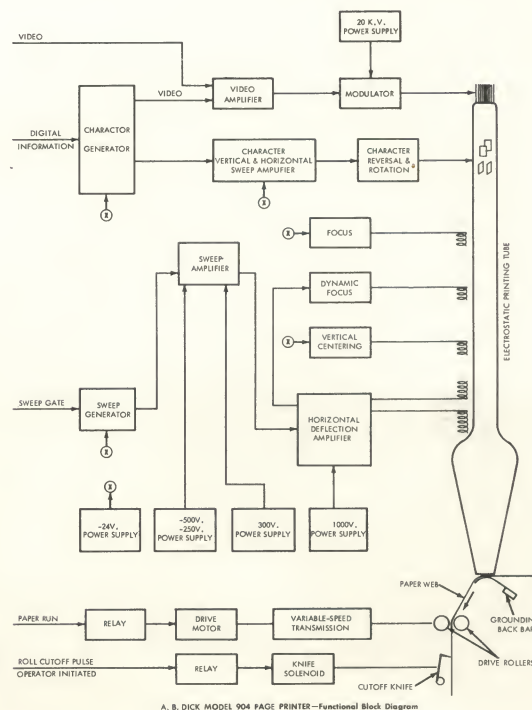


FIGURE 6

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FORM NO. 63-26

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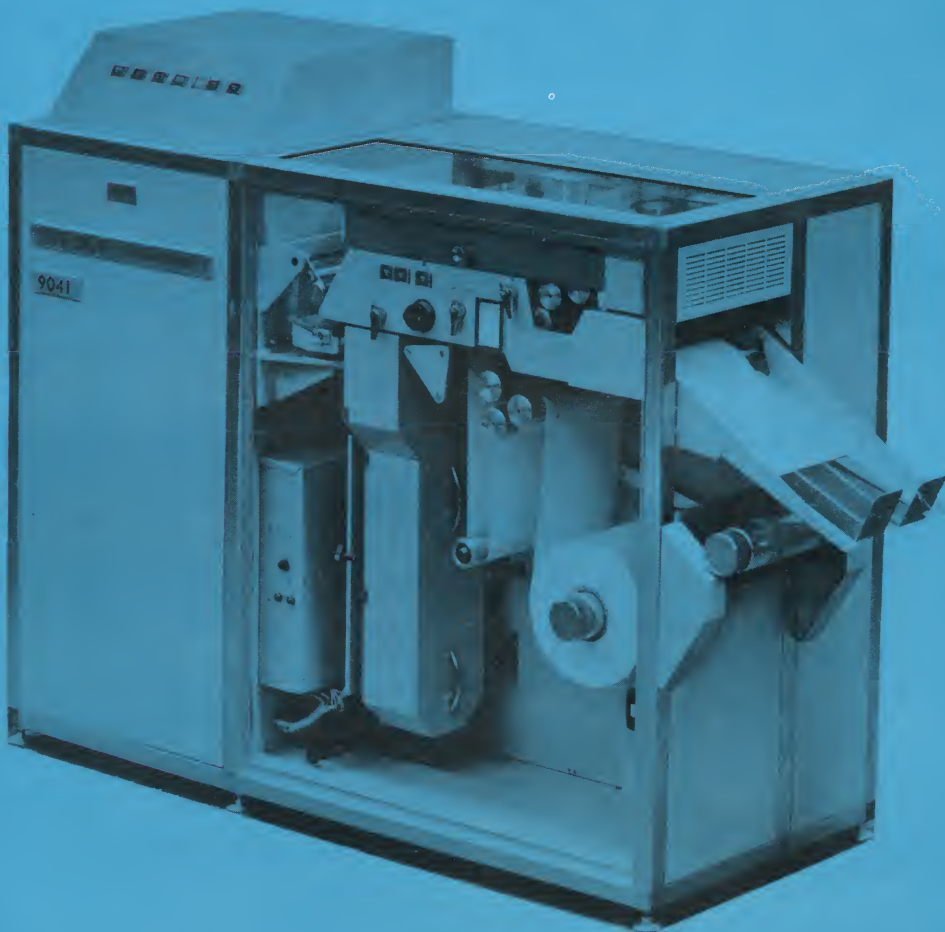


MODEL

9041

VIDEOGRAPH

A B DICK ELECTRONIC DATA PRESENTATION



MODEL 9041 PRINTER/PLOTTER

MODEL 9041 PRINTER/PLOTTER

The newest in functional presentation and printout of readable data received from computer-coded source material, the Videograph Model 9041 Printer/Plotter (Figure 1) provides high-speed electrostatic printout of alphanumeric characters and symbols, or plotted-point curves (Figure 2). By means of an electrostatic printing tube directed at a moving web of paper, character imaging, developing, and fixing are automatically performed under room lighting conditions. High contrast black-on-white permanent copy is delivered completely dry and ready for use.

A companion Printer/Plotter Control Unit may be used in conjunction with the Videograph Model 9041. This equipment provides compatibility with various computer systems and allows increased flexibility for formatting real-time data. This unit serves as a buffer between either a data acquisition system or a computer prepared tape.

Coded digital input from computer and real-time sources, received via Printer/Plotter Control Unit, is converted to readable alphanumeric output in the form of video signals, by means of a character generator. Video signal output from the character generator is then applied directly to the electrostatic printing tube for printout in readable form on Videograph paper.

Copy is delivered permanently fixed and ready for use without further processing. Videograph paper and the fixed image are of archival grade and comparable, in contrast and permanence, to black-on-white copies produced on standard typewriters. Videograph paper has a dull finish which minimizes glare and furnishes a writing surface which easily accepts notations made with lead pencil, colored pencils, and fountain or ballpoint pen.

The entire Videograph process, from printout to fixing, is completely compatible with the operating environment of conventional computers.

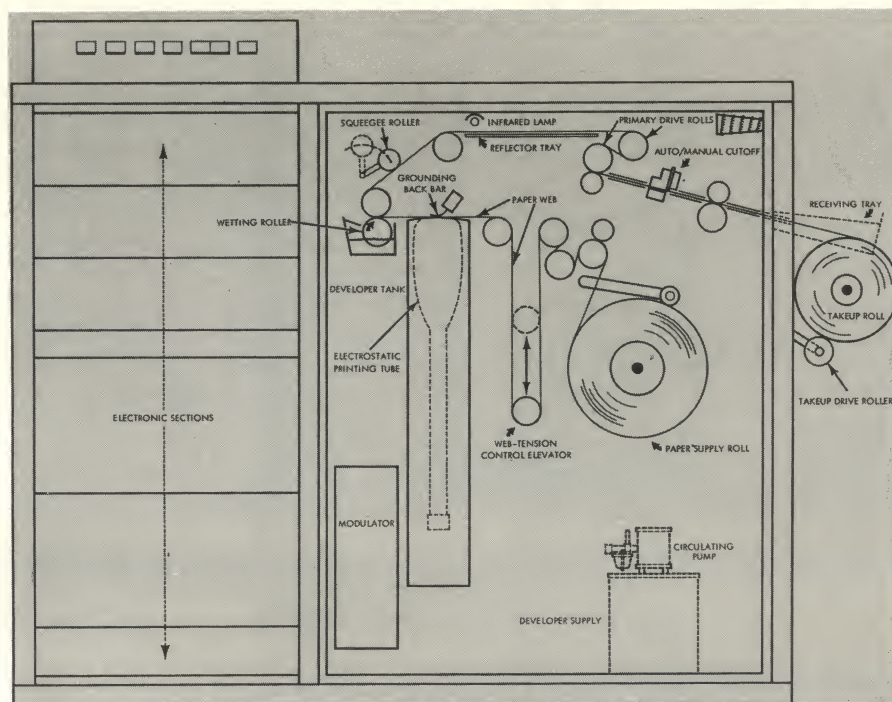
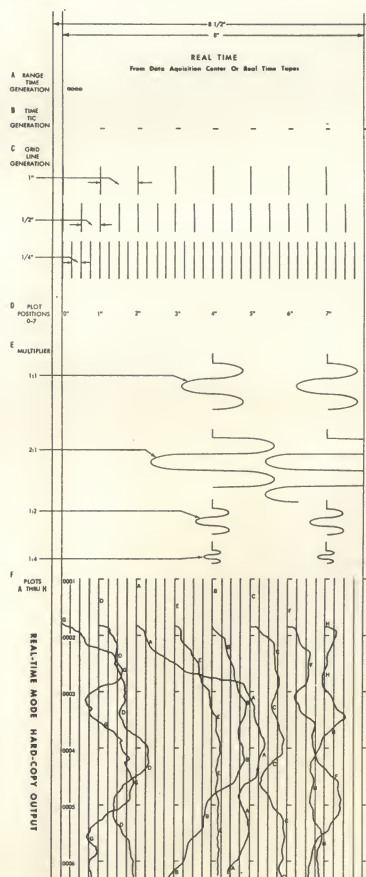


FIGURE 1.

REAL-TIME MODE HARD-COPY OUTPUT



COMPUTER-TAPE MODE HARD-COPY OUTPUT

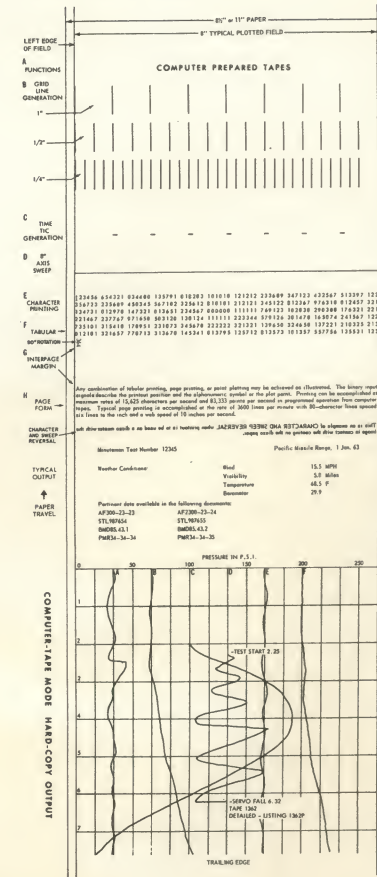


FIGURE 2.

CHARACTER GENERATOR

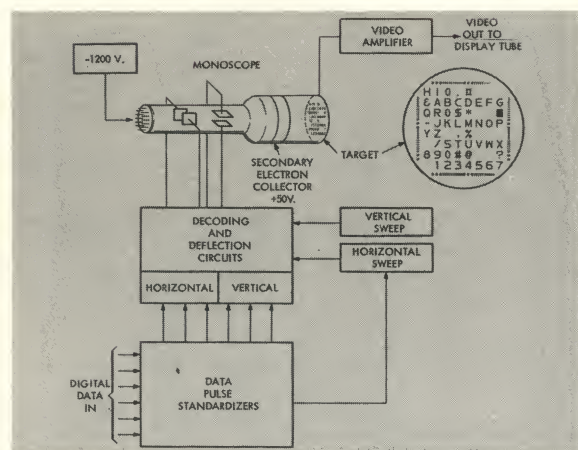


FIGURE 3.

Compatible with all modern electronic data processing systems, the Videograph Character Generator (Figure 3) is a compact electronic monoscope system that converts and translates coded digital INPUT (computer language) to readable alphanumeric characters and symbols (human language) at speeds up to 15,000 characters per second.

As a self-contained unit within the Model 9041 Printer/Plotter, the Character Generator provides readable alphanumeric OUTPUT in the form of video signals.

The heart of the Character Generator is a special monoscope-type cathode-ray tube comprising an electrostatically deflected electron gun and an aluminum target. Printed on the aluminum target are all of the desired characters or symbols in an eight-by-eight array and in any desired type face.

As the electron beam is scanned across any selected character on the target, resultant video signals are then amplified and applied instantaneously to the Printer/Plotter electrostatic printing tube. The end result is readable printout in character or plot form.

VIDEOGRAPH ELECTROSTATIC PRINTING

Developed by A. B. Dick Company, the Videograph electrostatic printing and developing technique makes possible ultra-high-speed printout from the Model 9041 Printer/Plotter at rates up to 15,000 characters per second.

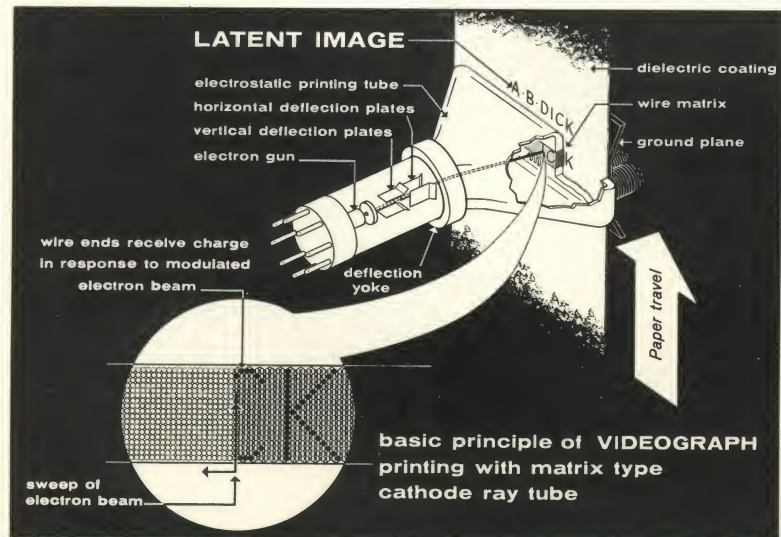
The unique feature of the equipment designed to accomplish this high-speed printing is a variation of the conventional cathode-ray tube. Instead of a fluorescent screen for image reproduction, the Videograph electrostatic printing tube (Figure 4) uses a screen or matrix of extremely fine wires extending through and sealed into the faceplate of the tube.

Video signals representing the characters and symbols to be recorded, direct the electron beam through a series of deflection plates within the tube to "write" character configurations on the wire matrix.

Current passing through the wires places an invisible electrostatic charge pattern on a moving web of paper, conforming to character images. The paper is then passed through a developer section where developing and fixing are accomplished automatically.

The Videograph printing technique is designed for maximum flexibility with systems applications. It is a less costly, highly dependable electrostatic printing method that eliminates the need for photoconductive elements, expensive papers, and a variety of peripheral factors.

FIGURE 4.



PRINTER/PLOTTER CONTROL UNIT

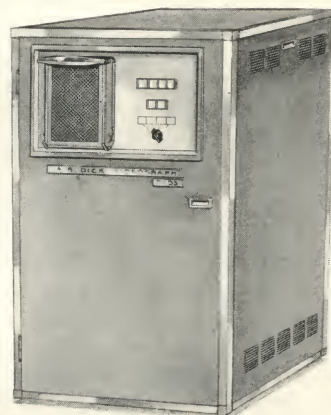


FIGURE 5.

The Printer/Plotter Control Unit (PPCU) acts as an input control unit for the Videograph Model 9041 Printer/Plotter (Figure 5). In this function, the PPCU provides the proper signals and controls necessary to command input data from either a real-time data acquisition system, or from digitally coded magnetic tape for proper sequential delivery to the Videograph Printer/Plotter.

The signals and controls emanating from the PPCU command the Printer/Plotter to print alphanumeric characters or plot precise points on a moving web of paper as well as to command the printer to cut the web at programmed intervals.

As an interconnecting system, the PPCU and the Videograph Model 9041 Printer/Plotter form a complete and extremely flexible recording system.

* MODEL 9041 CONDENSED SPECIFICATIONS

PRINTER TYPE:

Videograph electrostatic demand-type printer for high-speed, "daylight" printout of directly acquired, or computer processed, digital and analog data.

PLOTTED POINT PRINTING RATE:

83,333 points per second.

CHARACTER PRINTING RATE:

15,625 characters per second.

PAGE PRINTING RATE (TYPICAL):

3600, 80-character lines per minute for pica typewriter characters (10 per inch) with six lines per inch spacing, at a web speed of 10" per second.

CHARACTER CHOICE:

64 different characters or symbols to customer's specifications.

PRINTING WIDTH:

8" plotted field, 8½" for axis sweep.

WEB WIDTH AND LENGTH:

Either 8½" or 11" wide by 1460 feet long in 10" O.D. rolls.

WEB SPEED:

Variable between 0.1" to 10" per second in two ranges.

SPEED SELECTION ACCURACY:

Within ±1% at speeds above 2.5" per second.

AMPLITUDE (DEFLECTION) INCREMENTS:

0 through 1023 across 8" web; one increment=0.0078" approx.

PLOTTED POINT POSITION ACCURACY:

Within 0.015" in any selected 1-inch interval along the chart length; within ±0.1% of full scale horizontal deflection for points located between two plotted grid lines of ½" separation.

PLOTTED FIELD CENTERING STABILITY:

Accuracy within ±⅛" in relation to web for at least 50 hours operation.

COPY CHARACTERISTICS:

Black characters on white, dull finish paper suitable for notation with pencil, ballpoint, or pen and ink. Image and paper are equal in permanence and contrast to copies made on office typewriters.

INPUT LINES FOR DATA SIGNALS FROM SEPARATE CONTROL UNIT:

Signals may be pulse-coded or levels-plus-strobe. 6 digital-data lines for 6-bit binary code (parallel) for character selection; one line for parity check. One character strobeline (if used). One video line to print points and grids. 10 digital deflection lines to select cross web printing position.

INPUT DATA SIGNAL VOLTAGES (±20% UNLESS OTHERWISE INDICATED):

Character Selection and Parity:

Plus 5-V level= binary one. Minus 5-V level= binary zero.

Character Strobe:

2 μsecond, 6-V positive pulse (±10%)

Video:

1-V positive pulse= black, 0.3 μsecond min.; 225 μsecond max.

Deflection:

Plus 5-V level= binary zero. Minus 5-V level= binary one. Binary zero represents no deflection from left edge; all binary ones represent full scale (1024 increments). A binary one on line #one represents one unit (1/1024) deflection from the left.

Deflection Parity Error:

Minus 5-V baseline, 2 μsecond, 10-V positive pulse= error.

Horizontal Sweep Gate:

Minus 5-V level= reset to left. Plus 5-V level= sweep to right at 1"/30 μsecond rate.

OUTPUT DATA SIGNALS TO CONTROL UNIT:

Character Reset Strobe:

One line to reset strobe following character cycle. 6-volt negative, 2 μsecond pulse= digital one.

SIZE:

60" L (without receiving tray) x 46" H x 26" W

WEIGHT:

1100 lbs.

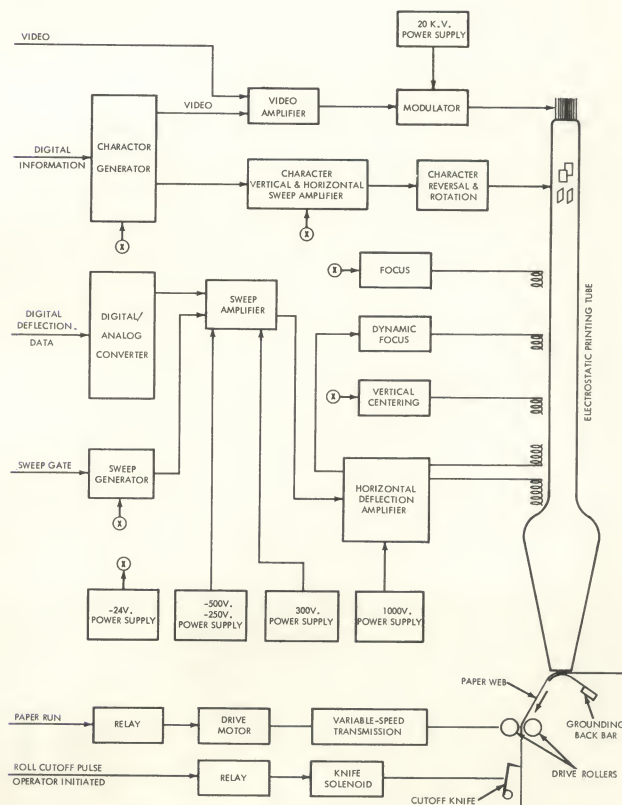
ELECTRICAL REQUIREMENTS:

208 V. A. C. ±10%, 3φ, 4-wire (1 neutral), 30 amp. per phase, 60 cps ±2 cps; one, 1-inch braided, direct earth ground cable.

VENTING:

Via 4" or 6" duct and adequate blower furnished by customer.

**Specifications are approximate and subject to change without notice.*



A. B. Dick Model 9041 Videograph Printer/Plotter
Functional Block Diagram

FIGURE 6

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